

PROCEEDINGS
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NEW CHINESE FISHES.

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The American Museum of Natural History has recently accumulated a small collection of fresh-water fishes from China. These have come from two widely separated sources, firstly from Yunnan-fu, Yunnan Province, collected by Mr. John Graham, secondly from Futsing, Fu-kien Province, collected by the Museum's Asiatic Zoological Expedition of 1916-17, about July 25, 1916.

Only one species is common to the two lots, the Goldfish, *Carassius auratus* (Linnaeus).

Owing largely to small collections sent to the British Museum by Mr. Graham over a period of years, the fishes of Yunnan are comparatively well known. It will suffice merely to mention those species in the Yunnan lot already known from that locality: namely (Catfish) *Silurus mento* Regan, *Macrones medianalis* Regan, *Liobagrus nigricauda* Regan; (Carps) *Misgurnus anguillicaudatus* (Cantor), *Nemachilus nigromaculatus* Regan, *Cyprinus carpio* Linn., 2 barbelled form, *Cyprinus micristius* Regan, *Barbus grahamsi* Regan; (others) *Ophiocephalus argus* Cantor. *Monopterus* sp. (see beyond).

Five species in the Fu-kien lot are well known fishes, namely (Carps) *Acanthogobia maculatus* (Bleeker), *Zacco platypus* (T. & S.), known from Japan, *Opsariichthys bidens* Günther; (others) *Anguilla japonica* T. & S. *Channa ocellata* Peters. Mr. H. R. Caldwell contributes interesting data on *Channa*. This fish is abundant near sea level in the vicinity of Fu-chau, and also occurs, though in less numbers, at Yen-ping. It prefers stagnant water and will travel across country to get from one pool

to another or to invade the rice fields. Natives call it *nguok-la*, "Moon-pike," differentiating it from *chau-la*, "Grass-pike"—*Ophiocephalus*. The reference is to the moon-like markings at the caudal base. It is a good food-fish.

There remain to be considered at greater length two carps from Yunnan (a *Hemiculter* and *Acanthorhodeus*) apparently undescribed; two from Fu-kien, a *Cobitis*, and a fish allied to *Leuciscus* but with peculiar jaw,—and symbranch eels of the genus *Monopterus* from each locality. *Monopterus* from various parts of China is now referred to *M. javanensis* Lacépède, but I find the material from Yunnan and Fu-kien separable, and see no reason why either form should be identical with that in Java, with the description of which neither agrees well.

***Cobitis dolichorhynchus*, sp. nov.**

Resembles the striped loach, *Cobitis taenia*, which ranges from Europe to Japan, but is more elongate, especially the snout. The type and only specimen No. 7026, American Museum of Natural History, was collected at Futsing, Fu-kien Province, China, by the Museum's Asiatic Expedition. It is 66 mm. long to base of caudal. Head 4.0 in this length, depth 5.8. Snout 2.0 in head, pectoral 1.5, ventral 1.7, longest dorsal ray 2.0, longest anal ray 1.9, caudal 1.5, depth of peduncle 2.0. Eye 3 in snout. Interorbital 1.5 in eye.

A strong, unequally forked spine recumbent in an elongate pit which extends forward from below the front of the eye. Body compressed, head and snout strongly compressed. Interorbital flat. Mouth small, well under the projecting snout, the gape reaching to below a point midway between tip of snout and nostril. A pair of barbels near the tip of snout, another at the end of the maxillaries, and a third in an intermediate position. Besides these six, a short barbel at the nostril. A broad, fleshy, weakly three-lobed membrane under the chin. Dorsal origin equidistant from chin and caudal base. Ventral slightly in advance of middle of dorsal. Pectoral reaching slightly more than half way to ventral, ventral slightly more than half way to anal, anal not reaching caudal by a distance equal to a third of head. Caudal rounded. Body covered with very small scales. Dorsal 9. Anal 7.

Color in spirits pale, darker on top of head, a dark streak from eye to snout, dark specks on the cheek. Irregular dark cross blotches occupying most of the back. Below these a narrow dark stripe extends backward from the nape, broken and mixed with the dorsal blotches behind the dorsal fin. A row of more or less oval dark blotches from the center of the side behind the gill cover to the lower caudal base, a faint dusky shade connecting them. Between the blotches and the stripe above, a ragged dark streak extends backward, terminating in widely spaced

specks under the dorsal. A narrow oblique vertical inky-black blotch at the upper base of the caudal. Dorsal and caudal with dark bars.

Georgichthys, gen. nov.

Type, Georgichthys scaphignathus, sp. nov.

A cyprinid fish with superficial resemblance to certain species of *Leuciscus*. Mouth small, slightly inferior. Rami parallel and fused, the lower jaw rather broad and rounded at its end, flat above, covered in front and above with a longitudinally fluted membrane. Lips rather thick, confined to the sides of the lower jaw. No barbels. Scales moderate. Lateral line complete, in the center of the peduncle. Dorsal without spinous ray, its origin slightly in advance of ventral. Dorsal and anal fins short. Teeth in a single row, five, hooked. This interesting minnow is named for George Borup Andrews.

Georgichthys scaphignathus, sp. nov.

The type and only specimen, No. 7038, American Museum of Natural History, collected at Futsing, Fu-kien Province, by the Museum's Asiatic Expedition, is 70 mm. long to base of caudal. Head 4.0 in this measure, depth 3.5. Snout 3.3 in head, eye 4.0, interorbital 3.1, maxillary 4.0, not reaching eye, pectoral 1.3, ventral 1.4, longest dorsal ray 1.3, longest anal ray 1.5, caudal 1.0.

Body moderately compressed, peduncle 1.4 times as long as broad. Ventral not reaching anal, anal not reaching caudal, which is moderately forked. Scales normal on the rounded belly and elsewhere, with conspicuous radiating and concentric marking, 39, $4\frac{1}{2}$ between lateral line and dorsal, 3 between lateral line and ventral. Dorsal 9. Anal 8.

Color in spirits dark on the back, the sides with extensive irregular dark blotches, front of dorsal and center of caudal lobes blackish, under surface of body, and fins otherwise pale. (*scaphignathus*—spade-jaw.)

Hemiculter andrewsi, sp. nov.

Scales smaller than in others of the genus (see monograph by War-pachowski. Bull. Ak. Sci. St. Petersb. 32, 1888, pp. 15 to 23, and Nikolski Annre. Mus. St. Petersb. 8, 1903, p. 359, for an additional species.) Teeth in 3 rows, compressed, and slightly hooked, 4-4-2.

The type, No. 7038, American Museum of Natural History, was collected at Yunnan-fu, Yunnan, China, by Mr. John Graham. It is 137 mm. long to base of caudal. Head 3.8 in this length, depth 4.2. Eye 4.2 in head, snout 4.0, interorbital 3.5, maxillary 3.4, depth of peduncle 2.8, pectoral 1.5, ventral 2.0, longest dorsal ray 1.9, longest anal ray 2.9, caudal 1.4.

Elongate, moderately compressed, peduncle twice as long as deep. Mouth moderate, rather oblique, lower jaw distinctly projecting, maxillary not quite to under front of eye, no barbels. Gill-rakers numerous and slender (the longest $\frac{1}{2}$ eye), about 45 on the first arch, backed by a

second row of shorter ones. Dorsal without a spine, its second ray soft and segmented though not divided, its origin a little behind ventral base, equidistant from base of caudal and front of eye. Pectoral pointed, reaching $\frac{2}{3}$ to ventral, ventral a little more than half way to anal, anal not reaching caudal by a distance equal to half head, caudal deeply forked. Apparently a low keel on belly behind ventrals and none in front of them (all three specimens are so cut as to make this difficult of determination). Lateral line complete, dropping to the lower part of the side with an abrupt flexure over end of pectoral, rising gradually on the peduncle to terminate in the center of same. Scales of moderate size on the body becoming smaller posteriorly, about 75, 11 between lateral line and dorsal, 3 between lateral line and ventrals. Dorsal 9. Anal 15.

Brownish along the back, silvery elsewhere. Named for Mr. and Mrs. Roy Chapman Andrews in recognition of their recent zoological explorations in Yunnan. Besides the type we have two smaller specimens of 114 and 116 mm. with the same data. The type is a female with eggs.

***Acanthorhodeus grahami*, sp. nov.**

Close to *Acanthorhodeus atranalis* Günther, but more slender. Depth 3.0 to 3.3 (instead of 2.5); $4\frac{1}{2}$ scales between lateral line and vent (instead of $5\frac{1}{2}$). Dorsal soft rays 11 to 13, anal 10 to 11. Scales 37 to 39. Teeth in one row, 5, slender, hooked, denticulate.

The type, No. 7029, American Museum of Natural History, was collected at Yunnan-fu, Yunnan, China, by Mr. John Graham. It is 54 mm. long to base of caudal. Head 4.0 in this length, depth 3.1. Eye 2.7 in head, snout 4.1, interorbital 3.4, maxillary 3.5, depth of peduncle 2.5, dorsal spine 1.6, longest ray 1.4, anal spine 1.7, longest ray 1.6, pectoral 1.3, ventral 1.5, caudal about 1.0.

Body compressed. Mouth oblique, lower jaw slightly projecting, maxillary not quite reaching front of eye, upper jaw strongly protractile, angle of mandible under front of eye, no barbels. Upper profile straight to nape, thence convex to dorsal, thence concave to caudal; lower profile oblique to angle of mandible, thence horizontal to gill opening, thence gently convex to anal, thence slightly concave to caudal; peduncle tapering, $2\frac{1}{3}$ times as long as deep. Vent just behind base of ventrals with a conspicuous papilla. Pectoral narrow and pointed, just reaching ventral, ventral just not reaching anal, dorsal and anal slightly concave above, caudal forked. Dorsal origin behind ventrals, midway between snout and base of caudal; anal origin under middle of dorsal. Second dorsal and anal rays developed as strong sharp spines, but not serrate. Scales loosely attached, lateral line complete, below the center of the front of the peduncle. Scales 38, $4\frac{1}{2}$ between lateral line and vent, $6\frac{1}{2}$ between it and dorsal. Dorsal II 12. Anal II 10.

Color pale. Sides silvery, the silvery forming an ill-defined stripe posteriorly, with a faint dark central streak. Most of the anal occupied by a large black semi-oval terminal blotch, which does not extend on the spines or posterior rays.

Besides the type, a male, we have 4 males and 3 females of about the same size with the same data. Females lack the black anal blotch, have the ventral papilla more prominent, and a long vermiform oviduct.

Monopterus cinereus Richardson.

Ichthyology Voyage of the *Sulphur*, 1844, p. 117, plate 52. Woosung. Not *Pneumabranchnus cinereus* McClelland. See Richardson, Ichthyology of China. Rept. Brit. Assoc. Adv. Sci. 1845 (1846), p. 315.

Measurements of Yunnan specimens are as follows:

Total length.	Head in length.	Tail from vent in length.	Eye in snout.
420 mm.	12.4	3.7	2.0
338	12.1	3.6	1.7
336	12.0	3.6	1.5

The two smaller specimens (and a third with imperfect tail of about the same size) agree with Richardson's excellent figure in Voyage of the *Sulphur*. The larger specimen is pale colored with occasional blackish blotches. They lack evident fins.

Monopterus xanthognathus Richardson.

Voyage of the *Sulphur*, 1844, p. 118, plate 52. Canton.

Measurements of Fu-kien specimens are as follows:

Total length.	Head in length.	Tail from vent in length.	Eye in snout.
284 mm.	13.5	4.2	2.3
173	13.8	3.6	2.0

These specimens differ from *cinereus* just as does Reeves' figure on which Richardson bases his description, in a shorter tail, smaller eye, and a high gibbous nape.

